

Communicable Disease Report

Hawai'i Department of Health
Communicable Disease Division

July/August 1999

Influenza Prevention and Control during 1999-2000

In the United States (U.S.) an estimated 65 million Americans develop influenza symptoms each year, 300,000 are hospitalized, and 25,000 die from the disease.¹ More than 90% of the deaths attributed to pneumonia and influenza occurred among persons aged 65 years or older. All persons 65 years of age or older, and children and adults with high-risk conditions are at increased risk for influenza-related complications and hospitalization.

This year, influenza activity has already been seen in the United States (Alaska²) where 132 cases were identified in tourists on seven different cruise ships between May 22 and June 28. Antigen-detection tests and cultures of respiratory specimens identified influenza A virus as the causative agent. In Hawai'i in July 1999, influenza A was confirmed in a 22 case outbreak in a skilled nursing facility on O'ahu.

The Advisory Committee on Immunization Practices (ACIP) has issued its annual updated recommendations concerning the vaccine and antiviral agents available for controlling influenza during the 1999-2000 influenza season. The principal changes from the 1998-99 recommendations include:

- the trivalent vaccine formulation for 1999-2000;
- discussion of the potential expanded use of influenza vaccine;
- new background information on live-attenuated influenza vaccines (LAIVs), neuraminidase-inhibitor drugs, and rapid diagnostic tests; and
- new information on the epidemiology of influenza among travelers.

The full ACIP report can be accessed at the Centers for Disease Control and Prevention (CDC) website: <http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/00057028.htm>.

Composition of the 1999-2000 Vaccine

National and international surveillance of influenza was reviewed to assist in the preparation of the 1999-2000 season vaccine. The trivalent vaccine prepared for the 1999-2000 season includes A/Beijing/262/95-like(H1N1), A/Sydney/5/97-like(H3N2), and B/Beijing/184/93-like hemagglutinin antigens. For the B/Beijing/184/93-like antigen, U.S. manufacturers will use the antigenically equivalent B/Yamanashi/166/98 virus because of its growth properties and because it is rep-

resentative of currently circulating influenza B viruses.³

Influenza Immunization in Hawai'i

In Hawai'i, the influenza season (October to March) coincides with that of the U.S. Mainland. According to the CDC, the optimal time for organized vaccination campaigns for persons in high-risk groups is from October through mid-November. Administering the vaccine too far in advance of the influenza season should be avoided because antibody levels might begin to decline within a few months of vaccination.

People at Increased Risk for Influenza-related Complications

Influenza vaccine is strongly recommended for any person aged 6 months who, because of age or underlying medical condition, is at increased risk for complications of influenza. The CDC has identified the following groups as at-risk for influenza-related complications:

- persons aged 65 years or older;
- residents of nursing homes and other chronic care facilities that house persons of any age who have chronic

continued on page 5

Hawai'i Leptospirosis Study: Preliminary Results and Diagnostic Recommendations

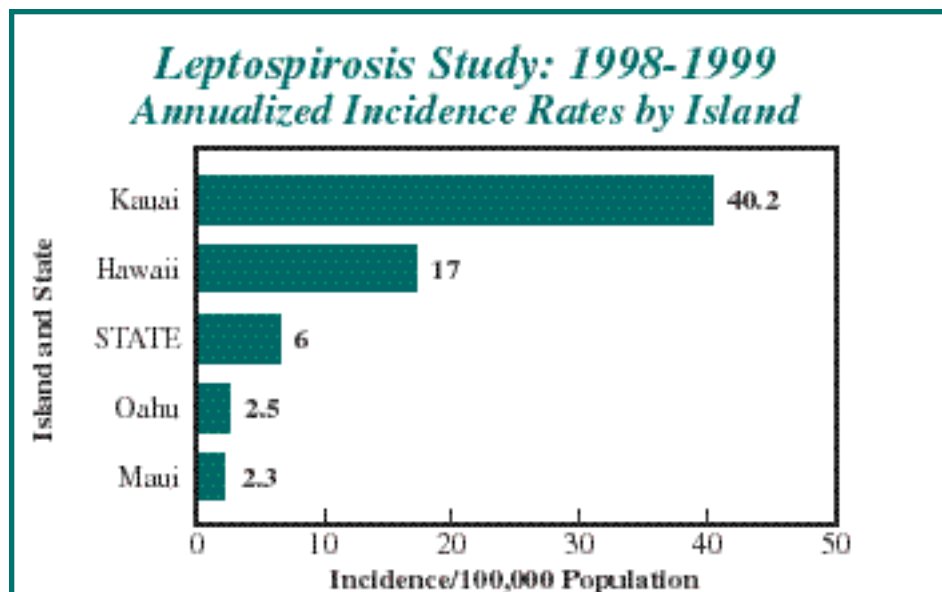
Background

The Epidemiology (Epi) Branch of the Department of Health (DOH) recently completed a state-wide leptospirosis community study. From June 1998 through February 1999, 405 patients were identified who had been evaluated by their physicians for leptospirosis. Convalescent samples to complete serologic diagnosis were requested on these patients, as well as heparinized blood and urine samples for culture. By island, 171 (42%) patients were from Hawai'i, 141 (35%) from O'ahu, 73 (18%) from Kaua'i, 18 from Maui and 2 from Molo-ka'i (5%). Paired or single convalescent samples for serologic diagnosis were obtained on 289 patients (71%), while 29% were excluded because convalescent samples could not be obtained. Blood cultures were obtained on 176 patients, and urine cultures received on 92 patients.

Results

Number of Cases Diagnosed

During the study, 61 cases of leptospirosis were detected. Twelve cases were diagnosed via blood culture, 49 by serology, and eight by both blood culture and serology. Hawai'i had 22 cases, O'ahu-19, Kaua'i-18, and Maui-2. The number of leptospirosis cases diagnosed on O'ahu was the highest annual total



ever detected from that island. However, the incidence rate by island was highest on Kaua'i, followed by Hawai'i, O'ahu and Maui (See Figure).

Blood Cultures

Neighbor island laboratories were requested to submit whole blood (heparinized) samples to the State Laboratories Division in Honolulu for incubation. Blood cultures were incubated at the DOH laboratory for 42 days. Seven cases were diagnosed by blood culture from Kaua'i, three from Hawai'i, one from O'ahu and one from Maui. None of the urine cultures detected leptospires.


paired samples for serology, seven met the serologic confirmed case definition of a four-fold rise in titer between acute and convalescent samples.

Four (33%) of the culture-confirmed cases would not have been detected had blood cultures not been ordered. One case provided three serum samples that were negative on the confirmatory serologic Microscopic Agglutination Test (MAT). Three cases declined to provide convalescent samples. All acute samples were negative on the Indirect Hemagglutination Assay (IHA) screening test. Had blood for cultures not been drawn on these patients, leptospirosis would not have been diagnosed.

Delay in blood culture inoculation reduced recovery of leptospires. Heparinized blood for culture from three patients shipped from Kaua'i to O'ahu were negative for leptospires, even though the organism grew in media inoculated on Kaua'i. Two of the cultures were inoculated immediately after the sample was drawn, while the third sample was transferred to the District Health Office in Lihue and inoculated 24 hours later. This suggests that a delay in inocu-

All blood culture samples were drawn between 0 and five days after onset, with a mean of 2.7 days. Incubation periods ranged from 11 to 27 days, with a mean of 17.6 days. For the leptospirosis cases whose blood was cultured, the sensitivity of blood cultures was 40%. Of the eight culture-confirmed cases that provided

Communicable Disease Report

| | | |
|---|---|--|
| Communicable Disease Division | 586-4580 |  <p>The Health State HAWAII STATE DEPARTMENT OF HEALTH</p> <p>Editor: David Sasaki, DVM, MPH</p> <p><small>Published bimonthly by the Hawai'i Department of Health, Communicable Disease Division, 1250 Punchbowl Street, Honolulu, Hawai'i 96813 Postage paid at Honolulu, Hawai'i</small></p> |
| Epidemiology Branch | 586-4586 | |
| Tuberculosis Disease Control Branch | 832-5731 | |
| Hansen's Disease Control Branch | 735-2472 | |
| STD/AIDS Prevention Branch | 733-9010 | |
| STD Reporting | 733-9289 | |
| AIDS Reporting | 733-9010 | |
| Information & Disease Reporting | 586-4586 | |
| After-hours Emergency Reporting | 247-2191 <small>(State Operator)</small> | |
| After-hours Neighbor Island Emergency Reporting | 800-479-8092 | |

continued on page 6

Rotavirus Vaccine Suspension: Notice to Vaccines for Children Providers

The Hawai'i Vaccines for Children Program has recently been notified by the Centers for Disease Control and Prevention (CDC) that rotavirus vaccine use should be suspended until early November 1999.

Intussusception Among Vaccinated Infants

During September 1, 1998-July 7, 1999, 15 cases of intussusception among infants who had received the rotavirus vaccine were reported to the Vaccine Adverse Event Reporting System (VAERS), according to the July 16, 1999 issue of the Morbidity Mortality Weekly Report.¹ Of the 15 infants with intussusception reported to VAERS, 13 (87%) developed intussusception following the first dose of the three-dose series, and 12 (80%) of 15 developed symptoms within one week of receiving any dose of the vaccine. Thirteen of the 15 patients received other vaccines concurrently with the rotavirus vaccine. Intussusception was confirmed radiographically in all 15 patients. Eight infants required surgical reduction, and one required resection of seven inches of distal ileum and proximal colon. Onset dates of reported illness occurred from November 21, 1998 to June 24, 1999. The median age of patients was 3 months, and 10 were boys. None of the reported cases occurred in Hawai'i residents.

Prelicensure Studies

The rate of hospitalization for intussusception among infants aged <12 months during 1991-1997 (before rotavirus vaccine licensure) was 51/100,000 infant-years in New York. The manufacturer had distributed approximately 1.8 million

doses of the vaccine as of June 1, 1999, and estimated that 1.5 million doses (83%) had been administered. Given this information, 14-16 intussusception cases among infants would be expected by chance alone during the week following receipt of any dose of the vaccine.

In prelicensure studies, five cases of intussusception occurred among 10,054 vaccine recipients and one of 4633 controls, a difference that was not statistically significant. On the basis of these data, intussusception was included as a potential adverse reaction on the package insert, and the Advisory Committee on Immunization Practices recommended postlicensure surveillance for this adverse event following vaccination.

Postlicensure Studies

In response to the VAERS reports, a preliminary analysis of data from an ongoing postlicensure study was performed and a multistate investigation was initiated to determine whether an association exists between the vaccine and intussusception in infants. Observed rates of intussusception among recently vaccinated infants suggested an increased risk for intussusception following receipt of the vaccine. However, the available data do not establish a causal association between receipt of rotavirus vaccine and intussusception, and additional studies are ongoing.

Postponing Administration of Rotavirus Vaccine

Because more data are anticipated within several months and rotavirus season is still 4-6 months away in most areas of the

United States, the CDC recommends postponing administration of rotavirus vaccine to children scheduled to receive the vaccine before November 1999, including those who have already begun the series.

Parents or caretakers of children who have recently received rotavirus vaccine should promptly contact their health-care provider if the infant develops symptoms consistent with intussusception (e.g. persistent vomiting, bloody stools, black stools, abdominal distention, and/or severe colic pain). Health-care providers should consider intussusception in infants who have recently received rotavirus vaccine and present with a consistent clinical syndrome, as early diagnosis may increase the probability the intussusception can be treated successfully without surgery. Vaccine providers, parents, and caretakers should report intussusception and other adverse events following vaccination to the VAERS.

Information on reporting to VAERS and case report forms can be requested 24 hours a day by telephone at (800) 822-7967, or the World-Wide Web at <http://www.cdc.gov/nip/vaers.htm>.

REFERENCE:

¹ Centers for Disease Control and Prevention. Intussusception Among Recipients of Rotavirus Vaccine - United States, 1998-1999. *MMWR* 1999;48(27):577-581.

Submitted by David M. Sasaki, D.V.M., M.P.H., Veterinary Medical Officer, Epi - demiology Branch.

Varicella Vaccine ACIP Update

On May 28, 1999, the Advisory Committee on Immunization Practices (ACIP) published an update on the recommendations for the prevention of varicella.¹ Highlights of these updates include:

1) POST EXPOSURE PROPHYLAXIS

The ACIP now recommends varicella vaccine for susceptible persons following exposure to varicella.

Data from the U.S. and Japan indicate that varicella vaccine is effective in preventing illness or modifying varicella severity if used within three days, and possibly up to five days, of exposure to wild type varicella. If exposure to varicella does not cause infection, postexposure vaccination should induce protection against subsequent exposure. If the exposure results in infection, no evidence indicates that administration of varicella vaccine during the presymptomatic or prodromal stage of illness increases the risk for vaccine-associated adverse events.

2) VACCINATION OF HIGH-RISK ADOLESCENTS AND ADULTS

The ACIP has strengthened its recommendations for susceptible persons aged 13 years at high risk for exposure or transmission of varicella, including designating adolescents and adults living in household with children as a new high-risk group.

Varicella vaccine is recommended for susceptible persons in the following high-risk groups:

- a) persons who live or work in environments where transmission of varicella is likely (e.g., teachers of

young children, day care employees, and residents and staff members in institutional settings);

- b) persons who live and work in environments where transmission can occur (e.g. college students, inmates and staff members of correctional institutions, and military personnel);
- c) nonpregnant women of childbearing age;
- d) adolescents and adults living in households with children; and
- e) international travelers.

3) VACCINATION OF PEOPLE WITH IMPAIRED HUMORAL IMMUNITY

The ACIP maintains its recommendation that varicella vaccine should NOT be administered to persons who have cellular immunodeficiencies, but persons with impaired humoral immunity may now be vaccinated.

The ACIP has previously recommended that varicella vaccine should not be administered to persons with primary or acquired immunodeficiency, including immunosuppression associated with AIDS or other clinical manifestations of Human Immunodeficiency Virus (HIV) infections, cellular immunodeficiencies, hypogammaglobulinemia and dysgammaglobulinemia.

However, people with impaired humoral immunity and some HIV-infected children may now be considered for vaccination. Because children infected with HIV are at increased risk for morbidity from varicella and herpes zoster compared with healthy children, ACIP recommends that, after

weighing potential risks and benefits, varicella vaccine should be considered for asymptomatic or mildly symptomatic HIV-infected children in CDC class N1 or A1 with age-specific CD4+ T-lymphocyte percentages of 25%.

Eligible children should receive two doses of varicella vaccine three months apart. Because persons with impaired cellular immunity are potentially at greater risk for complications after vaccination with a live vaccine, these vaccinees should be encouraged to return for evaluation if they experience a postvaccination varicella-like rash.

The Vaccine Adverse Event Reporting System (VAERS) rate of herpes zoster after varicella vaccination was 2.6/100,000 vaccine doses distributed (CDC, unpublished data, 1998). The incidence of herpes zoster after natural varicella infection among healthy children age <20 years is 68/100,000 person years.

Transmission of the varicella vaccine virus has been documented on only three occasions out of 15 million doses of vaccine distributed.

For further details, please see the MMWR, Recommendation and Reports, Volume 48, No. RR-6, visit the CDC website at www.cdc.gov/epo/mmwr/preview/mmwrhtml/rr4806a1.htm, or call the Hawai'i Immunization Program Officer of the Day at (808) 586-8332.

REFERENCE:

- ¹ Centers for Disease Control and Prevention. Prevention of Varicella. *MMWR* 1999;48:(RR-6):1-5.

Influenza Prevention

continued from page 1

- medical conditions;
- adults and children who have chronic disorders of the pulmonary or cardiovascular systems, including children with asthma;
- adults and children who have required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases, diabetes mellitus, renal dysfunction, hemoglobinopathies, or immunosuppression;
- children and teenagers (aged 6 months to 18 years) who are receiving long-term aspirin therapy, and might be at risk for developing Reye syndrome after influenza; and
- women who will be in the second or third trimester of pregnancy during influenza season.

Groups that Can Transmit Influenza to Persons at High Risk

Persons with clinical or subclinical influenza infection can transmit influenza virus to persons at high risk for serious influenza-related complications. Reducing the likelihood of influenza exposure from their care givers may protect high-risk individuals from contracting influenza. The following groups should be vaccinated:

- physicians, nurses, and other personnel in both hospital and outpatient-care settings;
- employees of nursing homes and chronic-care facilities who have contact with patients or residents;
- employees of assisted living and other residences for persons in high risk groups;
- providers of home care to persons at high risk (e.g., visiting nurses and volunteer workers); and
- household members (including children) of persons in high-risk groups.

Other Groups to Consider for Influenza Vaccination

HIV-infected patients

Because influenza can result in serious illness or complications and vaccination can result in the production of protective

antibody titers, it will benefit many HIV-infected patients, including infected pregnant women. The vaccine does not affect the safety of mothers who are breastfeeding or their infants.

Travelers

Outbreaks in tourists are not uncommon.

Persons at high risk for complications of influenza should consider receiving influenza vaccine before travel if:

- 1) they were not vaccinated with influenza vaccine during the preceding fall or winter;
- 2) they plan to travel to the tropics;
- 3) they will be traveling with large organized tourist groups at any time of year; or
- 4) they plan to travel to the Southern Hemisphere from April through September.

Persons at high risk who received the previous seasons's vaccine before travel should be revaccinated with the current vaccine in the following fall or winter.

Others

Influenza vaccine should be administered to any person who wishes to reduce the likelihood of contracting influenza. The vaccine can be administered to children as young as 6 months of age. Persons who provide essential community services should be considered for vaccination to minimize disruption of essential activities during influenza outbreaks. Students or other persons in institutional settings should be encouraged to receive influenza vaccine to minimize the disruption of routine activities during epidemics.

Contraindications

The vaccine should not be administered to persons known to have anaphylactic hypersensitivity to eggs or other components of the influenza vaccine without first consulting a physician. Use of an antiviral agent (i.e., amantadine or rimantadine) is an option for prevention of influenza A in such persons. Minor illnesses with or without fever are not a contraindication to influenza vaccination.

Side Effects and Possible Adverse Reactions

When educating patients about potential

side effects, clinicians should emphasize that inactivated influenza vaccine contains noninfectious killed viruses and cannot cause influenza. Respiratory disease after vaccination is coincidental and unrelated to influenza vaccination.

The following side effects are occasionally observed following vaccination.

- Soreness at the vaccination site, lasting up to 2 days, is the most frequent side effect.
- Systemic reactions can include fever, malaise and myalgia, which most often affect persons who have had no exposure to the influenza virus antigens in the vaccine (e.g. young children). Studies in the elderly and healthy young adults suggest these reactions are no more common than following a placebo injection.
- Immediate - presumably allergic - reactions (e.g., hives, angioedema, allergic asthma, and systemic anaphylaxis) occur rarely. These reactions probably result from hypersensitivity to some vaccine component (e.g. residual egg protein).

Simultaneous Administration of Vaccines

Influenza and pneumococcal vaccines may be administered together. Since the target groups for the two vaccines overlap considerably, providers are encouraged to assess the pneumococcal vaccination status of those at high-risk who are receiving influenza vaccine. Both vaccines may be administered at the same time at different sites without increasing side effects.

Children at high risk for influenza-related complications can receive influenza vaccine at the same time they receive other routine vaccinations, including pertussis vaccine (DTaP).

Vaccines from the Vaccines for Children Program

The Vaccines for Children Program (VFC) provides free influenza vaccine to certain VFC-eligible children. The child must be in a group at increased risk for influenza-related complications, as listed above, to qualify for VFC influenza vac-

continued on page 6

Hawai'i Leptospirosis Study

continued from page 2

lation of heparinized blood into culture media reduces the recovery of leptospires, even though all blood for cultures had been appropriately stored and inoculated within seven days of the date the sample was drawn.

A previous active surveillance study conducted by the DOH¹ discovered that culture sensitivity was 90% in cases whose samples were drawn within seven days of onset. In this study, 67% of blood cultures were drawn within seven days, while 33% were drawn 8 days post onset, where the likelihood of leptospire recovery is very low.

Serologic Diagnosis

Paired samples and single samples drawn 14 days after illness onset were sent to the Centers for Disease Control and Prevention for MAT confirmatory serologic testing.

Of the 61 leptospirosis cases confirmed by culture or the MAT, eight acute samples were positive by the IHA screening test, for a sensitivity of 13%. Two factors accounted for the low sensitivity on acute sera:

- 1) It takes approximately seven days for IgM antibodies to be detected in acute sera;
- 2) Sensitivity of the screening test is low (see below).

Nineteen of the convalescent sample test results were positive by IHA for a sensitivity of 37%. Per patient, the overall sensitivity was 36% (cases with at least one positive IHA result). If paired samples and blood cultures had not been received, MAT confirmation would not have been obtained on up to 87% of cases detected in this study.

Diagnostic Recommendations

- Heparinized blood for leptospiral cultures should be drawn within seven days of onset of illness on all patients suspected of having leptospirosis prior to the administration of antibiotics.
- Blood for cultures should be inoculat-

ed into EMJH semi-solid culture media as soon as possible after the sample is drawn.

- Serology is the most sensitive method of diagnosis for leptospirosis, but paired samples are required to identify increases in antibody levels that confirm recent infection. For all suspected cases of leptospirosis, physicians should submit paired serum samples drawn 14 days apart to the DOH for IHA and MAT testing, with the first sample drawn on initial presentation.
- Urine cultures are **not** recommended. If urine cultures are obtained, the urine should be centrifuged and the pellet inoculated into culture media with 5-fluorocil immediately. Leptospire die rapidly in voided urine, and may be found only sporadically in the urine of convalescing cases.

New Screening Tests

Because the IHAtest is currently the only United States Food and Drug Administration (FDA) approved leptospirosis rapid screening test, the DOH will continue to use it. However, manufacturers of other leptospirosis screening tests plan to file applications with the FDA for marketing approval. The evaluation of these new screening tests conducted on sera obtained during this study is incomplete, but some of these rapid screening tests appear to have significantly higher sensitivity than the IHAtest. These results underscore the importance of submitting paired serum samples on suspected cases of leptospirosis to maximize confirmation of the diagnosis.

For more information, please call the Epidemiology Branch at (808) 586-4586 in Honolulu.

REFERENCE.

- ¹ Sasaki, D.M., Pang, L., Minette, H.P., Wakida, C.W., Fujimoto, W.J., Manea, S.J. et. al., Active Surveillance and Risk Factors for Leptospirosis in Hawaii. *Am. J. Trop. Med. Hyg.*, 1993;48(1):35-43.

Submitted by David M. Sasaki, D.V.M., M.P.H., Veterinary Medical Officer, Epidemiology Branch.

Influenza Prevention

continued from page 5

cine. Physicians may order the vaccine along with other VFC vaccines. For more information, please call the VFC Program at (808) 586-8312 on O`ahu. Neighbor island providers may call toll-free (800) 933-4VFC (933-4832). Influenza vaccine is expected to be available through the VFC program in September 1999.

Sources of Information

A copy of the Advisory Committee on Immunization Practices (ACIP) recommendations for the prevention and control of influenza was published in the April 30, 1999 *Recommendations and Reports* issue of Morbidity and Mortality Weekly Report.³ Information regarding influenza surveillance is available through the CDC Voice Information System (influenza update), (888) 232-3228; through the CDC Fax Information Service, (888) 232-3299; or through the CDC Influenza Branch's website at <http://www.cdc.gov/ncidod/diseases/flu/weekly.htm>. Copies of MMWR articles may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402-9325. Telephone: (202) 512-1800. For additional information, please contact the Hawai'i Immunization Program Officer of the Day in Honolulu at (808) 586-8332.

REFERENCES:

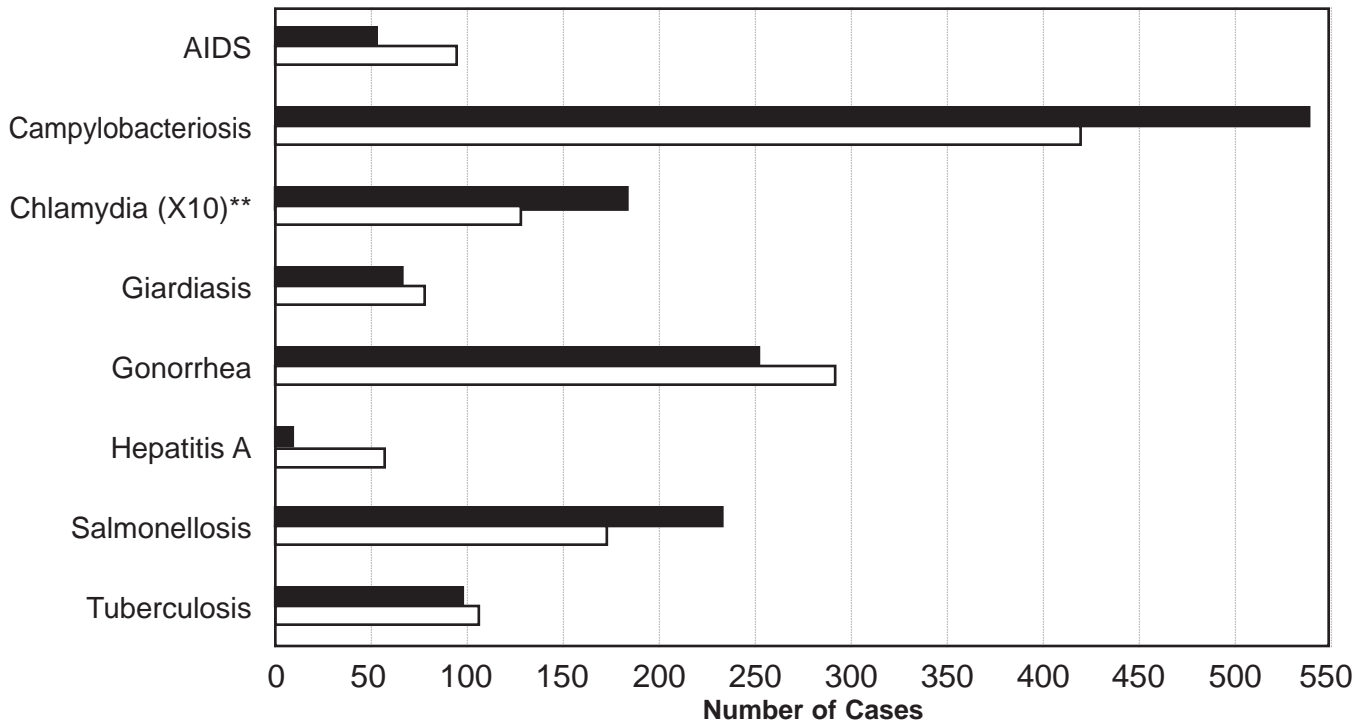
- ¹ Poland, G.A., Couch, R. Intranasal Influenza Vaccine. *JAMA* 1999; 282(2): 182-184.
- ² Centers for Disease Control and Prevention. Outbreak of Influenza A Infection Among Travelers - Alaska and the Yukon Territory, May-June 1999. *MMWR* 1999;48(25):454-546,555.
- ³ Centers for Disease Control and Prevention. Prevention and Control of Influenza: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 1999;48(RR-4):1-28.

Submitted by Judy Strait-Jones, M.P.H., MEd, Public Health Educator, Hawai'i Immunization Program, Epidemiology Branch.

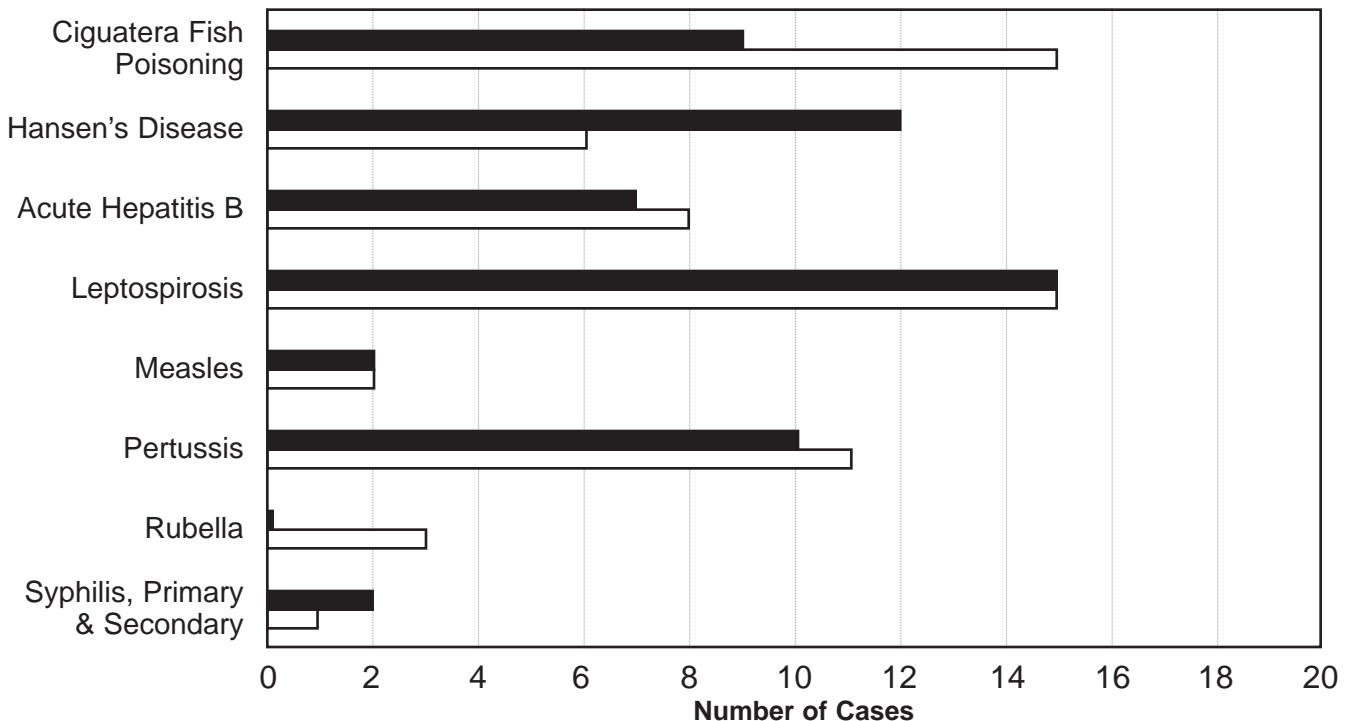
Communicable Disease Surveillance

Selected Diseases by Date of Report*

Hawai'i, 1999 Year-to-date Through July



■ 1999 YTD □ 5 YR Median YTD



* These data do not agree with tables using date of onset or date of diagnosis.

**The number of cases graphed represent 10% of the total number reported.